Retrofitting planes from defense to weather

By Nancy Mayer
STAFF WRITER

LIVERMORE — Defense surveillance planes are catching a second wind as helpmates for weather forecasters.

A variation on the Predator — a reconnaissance plane flown over Bosnia — is being retrofitted by Sandia and Lawrence Livermore national laboratory scientists for global climate research.

The Altus, a remote-controlled aircraft built by General Atomics Aeronautical Systems Inc., is expected to fly higher and longer than the Predator. After Labor Day, it will carry instruments to help scientists study the interplay of clouds with solar winds that drive Earth's weather patterns.

"That understanding eventually would result in better weather forecasts," said Will Bolton, an aerospace engineer with the Sandia lab.

The Altus aims to fly at altitudes up to 65,000 feet — nearly twice as high as most commercial airliners. Already, it can stay aloft for 24 hours, allowing heat flow above the clouds to be measured with a single set of instruments from one sundown to the next.

And since the aircraft is unmanned, researchers will be freed from worries about the pilot's health and welfare.

"If you want to do risky research, you'd want to do it without a human," Bolton said.

The new aircraft's first stop: Oklahoma, land of gnarly weather.

Test flights

Test flights at altitudes up to 45,000 feet are scheduled from Sept. 15 to Oct. 5 over a portion of "tornado alley" that is already thickly blanketed by scientific instruments.

The slender, long-winged plane is expected to soar high above the turmoil, taking measurements from a perspective even better than a bird's eye view.

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>
> **Will Bolton**
> *Aerospace engineer with the Sandia lab*

Reluctant to send

If all goes well, the aircraft eventually could fly above remote regions like the Pacific Ocean and North Pole — places that researchers are reluctant to send manned planes.

"If the plane were to get into trouble, the pilot might be able to eject. But they're a long way from help in a very hostile environment," Bolton said.

A more advanced version of the Altus, seeking altitudes up to 65,000 feet, is scheduled for test flights in the fall of 1997.

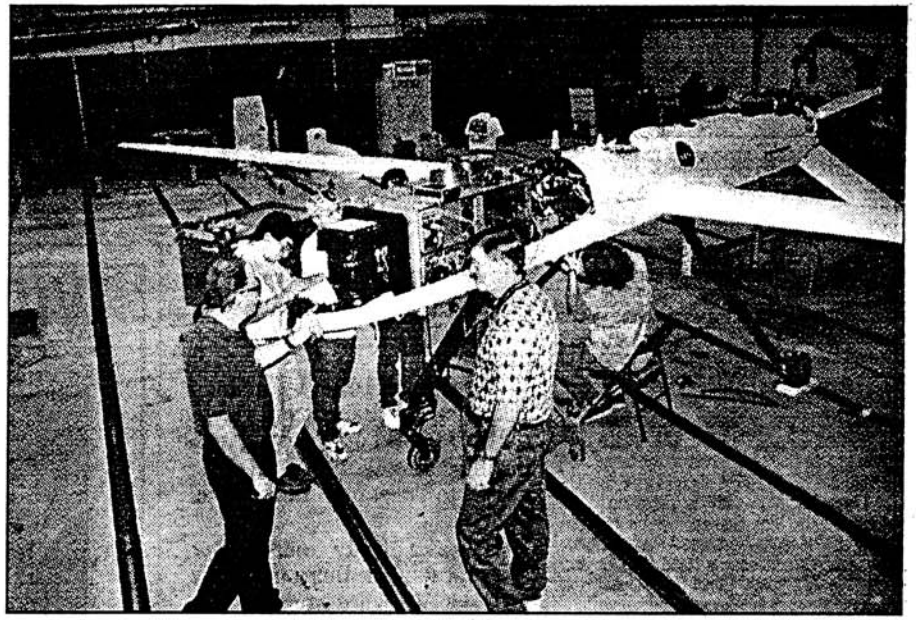

PHOTO COURTESY OF SANDIA NATIONAL LABORATORY

A high-altitude defense plane is being retrofitted to aid in global climate research.

Over tropics

That height would be needed to get atop warm air masses over the tropics, where the lowest level of atmosphere extends to 55,000 or 60,000 feet.

The Altus is the third phase of a program set up to measure atmospheric radiation. The Gnat studied clear skies up to 23,000 feet in spring of 1994, and the Egrett was a manned reconnaissance aircraft that flew up to 45,000 feet in 1995 and spring of 1996.

"Now we're ready to take the next step," Bolton said. "This will be the first time a payload will be put on the Altus. It's one of the first steps to the high-altitude, long-endurance capability we've wanted for years."

Tri-Valley Herald

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August 27, 1996